

# SOME ADDITIONS TO THE MOSS FLORA OF TASMANIA.

By W. A. WEYMOUTH.

## PART II.

(Read November 25th, 1895.)

In continuing the subject opened by me in the proceedings for 1893, I desire to acknowledge my further indebtedness to Professor V. F. Brotherus, of Helsingfors, from whose third series of "New Species of Australasian Mosses," as published in *Oefversigt af Finska Vet.-Soc. Foerh*, Helsingfors, 1895, I obtain the descriptions of New Mosses given under the first following heading. It is a pleasure to call attention to the fact that the writer's name does not appear alone in connection with these new species, his friends, Mr. T. B. Moore, of Strahan, and the Rev. John Bufton, of Dunally, bearing him company. This portion of the paper adds fifteen (15) new species, making in all twenty-eight (28) new mosses since Mr. R. A. Bastow's list.

The second heading notes two new varieties. The third deals with mosses already known elsewhere, but now for the first time recorded for Tasmania. One of these, *Barbula rubella* (Hoffm.), Mitt., is of the more interest in that it is also thus first recorded for Australasia.

The fourth part gives descriptions of four new mosses the names only of which appeared in my 1893 paper. These are obtained from the sources in which the respective authors published their original descriptions.

### NEW MOSSES.

14. *Sphagnum maximum*, Warnst., n. sp.

*Hab.*—Tasmania, locality unknown. (Herb. Mitten, No. 5.)

Writing to me on the 24th Jan., 1893, Mr. W. Mitten said:—"Packing material for apples from Tasmania supplied me with a *Sphagnum*, which I sent to Mr. Warnstorff, who said it was new."

On application to Mr. Warnstorff he was good enough to send me a small specimen of this moss, with the above name.



15. *Sphagnum moorei*, Warnst., n. sp.

*Hab.*—Kelly's Basin and Gordon River, Macquarie Harbour, on damp ground, 1893, T. B. Moore, No. 54. (Herb. W.A.W., No. 1602.)

16. *Andreaea amblyophylla*, C. Müll. in sched., n. sp.

Dioicous; in rigid, red-brown or black-brown cushions to 2 cm. high, easily falling to pieces. Stems erect, dichotomously branched; the branches fastigiate, obtuse, densely leaved. Leaves imbricate when dry, erecto-patent when wet, oblong-lanceolate or ovate-lanceolate, subcucullate, rotund-obtuse, coarsely papillose at back, nerveless, margin quite entire; cells very much thickened, the superior and marginal round, the middle narrow-oblong, and the basal linear. Perichaetial bracts much larger than the leaves, convolute, rotund-obtuse.

*Hab.*—On rocks, The Glen, Knocklofty, Hobart, W.A.W., Nos. 262, 475, 476, 477, 1618. (Also R. A. Bastow and A. J. Taylor in Herb. W.A.W., Nos. 1301, 1302.) Top Mount Wellington, W.A.W., Nos. 1634, 1635, 1643.

(Also New South Wales, Blue Mountains, T. H. Whitelegge, No. 302.)

Similar in habit to *A. petrophila*, Ehrh., but readily distinguished by the rotund-obtuse and subcucullate leaves.

17. *Dicranum rigens*, Burch. Broth., n. sp.

*Hab.*—On rock, Ploughed Field, Mount Wellington, 1891, and on log, Lauriston Gully, Kangaroo Point, 1889, W.A.W., Nos. 767 and 160.

18. *Dicranum integerrimum*, Broth. Geh., n. sp.

Dioicous; in dense, pale yellow, somewhat shining tufts to 7 cm. high, for the most part buried in sand. Stem erect, densely leaved, sparingly radiculose. Leaves roughly patent, not at all subsecund, smooth at back, deeply canaliculate-concave, from an ovate-lanceolate base subulate, margins erect, connivent above, quite entire or having a few denticles at apex only; nerve very thin, indistinct at base, excurrent, with smooth back; cells everywhere elongate, narrowly linear; the marginal very narrow, hyaline, forming a somewhat wide border, the alar numerous, ventricose, fusco-aureate, all quite smooth. The rest unknown.

*Hab.*—Jones' Track, Sprent River, West Coast, on sandy button-grass plains, T. B. Moore, No. 58. (Herb. Sir F. von Mueller, and also W.A.W. No. 1563.)

"This moss," says Mr. Brotherus, "appears to be nearest to *D. angustinervis*, Mitt., which is known to me only by the description and figure. From that and other kindred species it is separated by the quite entire leaves."



19. *Dicranum eucamptodontoides*, Broth. Geh., n. sp.

Dioicous; robust. In rigid, dense, wide-spreading tufts, easily falling to pieces, for the most part buried in sand, fuscescent, the apex yellowish-green, shining. Stem to 7 cm. high, fragile, densely terete-leaved, sparingly radiculose, simple or branched; branches short, and shortly cuspidate. Leaves scariose, imbricate when dry, erect when wet, cymbiform-concave, ovate-oblong, shortly acuminate, 4—5 mm. long and 1.5—2 mm. wide, margins erect, connivent at apex, quite entire; nerve thin, indistinct at base, wider above, back prominent, smooth; cells elongate, narrow, porous between, the marginal very narrow, forming a narrow hyaline border, the basal fusco-aureate, the alar numerous, very incrassate, fusco-aureate, often discoloured, all quite smooth. Perichaetial bracts slightly exserted, longly vaginant, convolute, very obtuse; nerve indistinct. Seta, short, 1 cm. high, yellowish red, quite smooth. Calyptra cucullate, somewhat fuscous, apex rather scabrous, base truncate, entire.

*Hab.*—Jones' Track, Macquarie Harbour, on sandy button-grass hills, July 1893, T. B. Moore, No. 60. (Herb. Sir F. von Mueller, and also W.A.W. No. 1603.)

"This very remarkable species," says Mr. Brotherus, . . . "I have classified, though indeed with much hesitation, among the genus *Dicranum*, because its very young fruit is somewhat curved, and the perichaetial leaves are much shorter than is the case with the species of the genus *Eucamptodon*."

20. *Pottia tasmanica*, Broth., n. sp.

Autoicous; gregarious, very small, fuscous-green. Stem scarcely 1 mm. high, radiculose at base, densely leaved, simple. Leaves when dry imbricate and indistinctly spirally twisted, when wet erect, strict, somewhat fleshy, concave, ovate-oblong or oblong, shortly acuminate or obtuse, muticous or very shortly cuspidate by the excurrent nerve, 0.95 mm. long and 0.38 mm. wide, margins strongly revolute (except at base); nerve rufescent, thin at base, thicker and better developed above, shortly excurrent; the marginal cells rectangular, hyaline, smooth, the upper rotund-hexagonal, c. 0.015 mm. in diameter, chlorophyllose, very papillose, obscure. Perichaetial bracts similar to the leaves. Seta 3 mm. high, yellow, very thin, quite smooth. Capsule erect, minute, oblong, fuscous, when dry somewhat shining, corrugated; exannulate. Peristome simple, pallid, rudimentary; teeth very short, 0.05—0.07 mm. high, truncate, very densely papillose; spores 0.025 mm., lutescent, coarsely pustular; operculum shortly conic, obtuse; calyptra fuscous at apex, scabrous.

*Hab.*—River Jordan, near Brighton, on earth, W.A.W., No. 1129.



21. *Glyphomitrium latifolium*, Broth., n. sp.

In somewhat dense tufts, easily falling to pieces, dark green, not at all shining. Stem to 2 cm. high, erect, flexuous, radiculose at base, densely leaved, simple or dichotomous. Leaves when dry crispate-appressed, when wet recurved-patulous, carinate-concave, from a scarcely dilated base oblong, rotund-obtuse, c. 3 mm. long and c. 0.85 mm. wide, margins erect, quite entire, slightly undulate; nerve rufescent, somewhat thick at base, gradually narrowing above, vanishing below the apex; cells rotund, c. 0.010 mm., the basal minute, quadrate, the intramarginal forming a lutescent border composed of from 4—5 series of rectangular cells, the intralimbate smaller, rectangular, less incrassate. The rest unknown.

*Hab.*—New Town Rivulet, on water-washed rocky bank, W.A.W. Nos. 1484, 1891, 1896.

"A very distinct species," says Mr. Brotherus, "readily distinguished by the form of the leaves."

22. *Macromitrium (Goniostoma) weymouthi*, Broth., n. sp.

Slender, prostrate, interwoven, bright-green, finally ferruginous. Stem longly creeping, vaguely branched; branches crowded with short, straight, or somewhat curved branchlets, densely leaved. Leaves when dry appressed, incurved at apex, spirally twisted, when wet erecto-patent, oblong-lanceolate, acute, the lower margins more or less revolute, quite entire. Nerve lutescent, vanishing below the apex; the basal cells elongate, very incrassate, and their cavities very narrow, those above the middle of leaf rotund, very incrassate, their cavities very minute, all pellucid and quite smooth. Perichaetial bracts erect, larger, acuminate. Seta erect, curvate-flexuous, 8—15 mm. high, yellow, quite smooth; capsule erect, oval, plicate when empty, small mouth, dull brown; peristome simple, the teeth arising below the orifice, short, papillose; operculum rostrate, the beak scarcely more than half the length of the capsule; calyptra a sordid yellow, ferruginous at apex, glabrous.

*Hab.*—On wood, Porteus Gully, Queen River Road, Macquarie Harbour, and also Henty River, on branch of myrtle, 1891, W.A.W., Nos. 573-5, and 569.

"Nearest to *M. scottiae*, C. Müll., but at once separated by the acute leaves, the vanishing nerve, and also the smaller cells."

23. *Macromitrium (Goniostoma) tasmanicum*, Broth., n. sp.

Autoicous; slender, prostrate, interwoven, bright green, when older fuscescent. Stem longly creeping, vaguely branched; branches crowded with short, straight branchlets,



densely leaved. Leaves when dry crispate-appressed, not twisted; when wet erecto-patent, oblong-lanceolate, acute, the lower margins more or less revolute, quite entire; nerve lutescent, vanishing below the apex; the basal cells elongate, very incrassate, and their cavities very narrow, those above the middle of the leaf rounded, all pellucid and quite smooth. Perichaetial bracts larger, erect, acuminate. Seta erect, flexuous, 5—7 mm. high, pale yellow-red, quite smooth; capsule erect, oval, plicate when empty, small mouth, dull brown; peristome simple, the teeth arising below the orifice short, papillose; operculum? calyptra yellow, fuscous at apex, glabrous, plicate.

*Hab.*—On wood, South Road Forest, Circular Head, 1892, W.A.W., Nos. 846, 1040, 1041, and on Mount Wellington, No. 121 (f. *lutescens*).

“Differs from the preceding species in the leaves being erect when dry, not spirally twisted; the less incrassate superior cells; and the shorter seta.”

24. *Tayloria obtusissima*, Broth., n. sp.

Dioicous; in tall, dense tufts, interwoven with fuscous-purple tomentum, bright green, when young somewhat shining. Stem 9 cm. high, erect, loosely leaved, simple. Leaves roughly patulous, very concave, cucullate at apex, from a shortly spathulate base broadly ovate, subround-obtuse, 3—5 mm. long and 2.5 mm. wide; margins erect, minutely and obtusely serrulate above; nerve thin, lutescent, vanishing far below the apex; cells soft, lax, shortly and broadly oblong, the apical subrotund-hexagonal, the basal elongate, rectangular. Perichaetial bracts smaller, the margins of the inmost distinctly serrulate; nerve shorter; numerous archegonia. The rest unknown.

*Hab.*—Falls Track, Mount Wellington, March, 1891, W.A.W., No. 1797.

“A very fine and most distinct species, readily distinguished at a glance from *T. callophylla* (C. Müll.) by the very obtuse leaves.”

25. *Calypothecium buftoni*, Broth. Geh., n. sp.

Dioicous; fuscescent-green, shining. Stem creeping; branches to 10 c.m. long, flexuous, turgidly leaved, terete, obtuse, crowded with patent, terete, obtuse branchlets scarcely longer than 1 c.m., and turgidly leaved. Leaves when dry loosely imbricate, neither rugulose nor plicate, when wet patent, cymbiform, concave, oblong-oval, abruptly and shortly acuminate, margins erect, quite entire; nerveless; cells elongate, very narrow, chlorophyllose, the basal aureate,



all quite smooth. Perichaetial bracts pallid, larger, erect, longly acuminate. Capsule immersed, broadly oval, pallidly fuscous, smooth. The rest unknown.

*Hab.* — Bathurst Harbour, West Coast, Rev. John Bufton, No. 91 (Herb. Sir F. von Mueller), and track to Hartz Mountains, No. 17.

"A very distinct and beautiful species, at once distinguished from congeners by the branches being crowded with branchlets."

26. *Hypnum (Rhynchostegium) moorei*, Broth. Geh., n. sp.

Dioicous; in dense, very broad, rigid tufts, bright or sordid green, somewhat shining. Stem elongate, vaguely branched; branches elongate, robust, terete, densely and squamosely leaved. Leaves scariose, when wet erecto-patent, concave, ovate, acute, margins erect, everywhere minutely serrulate; nerve from a wider base thinly vanishing above the middle; cells very narrowly linear, somewhat flexuous, chlorophyllose, the basal shorter and wider, the alar indistinct. The internal perichaetial bracts erect, somewhat reflexed at apex, from a vaginant base narrowly acuminate, the margins remotely serrulate at apex, loosely reticulate; nerveless. Seta 17 mm. high, somewhat straight, red, everywhere rough; capsule subhorizontal, from a short neck ventricose-oblong, pachydermous, pallid, smooth; peristome double, the outer teeth c. 0.66 mm. long and c. 0.08 mm. wide, rufescent, hyaline at apex, scabrid; the inner teeth yellow, papillose; the processes carinate, broadly perforate; the cilia in triplets, short, hyaline; spores 0.012—0.015 mm., ochraceous, quite smooth; operculum with an oblique beak shorter than the capsule.

*Hab.*—On rocks in running water, Guy Fawkes Rivulet (Hobart), the South George River (Gould's Country), and Deep Creek, Mt. Wellington, W.A.W., Nos. 945, 1608, and 1822. Moore's Track to Frenchman's Cap, West Coast, T.B. Moore, No. 39 (Herbs. Sir F. von Mueller and W.A.W.)

"A most distinct species, similar in habit to *H. rusciformi*, Weiss, but sharply marked off from it by the rough seta."

27. *Stereodon nelsoni*, Broth., n. sp.

Dioicous; in somewhat loose tufts, bright green, when old somewhat pallidly fuscous, shining. Stem firm, elongate, flexuous, loosely leaved, pinnately branched; the branches patulous, short and simple, or longer, and with few branchlets, distichously leaved. Leaves scariose, sparingly homomallous, rather concave, patulous, ovate or oblong-ovate, shortly and broadly acuminate, rather obtuse, margins erect, very minutely serrulate, the apex finely serrulate; two short



nerves; cells elongate, very narrow, somewhat flexuous, the lowest basal shortened, aureate, the alar numerous, minute, very incrassate, all quite smooth. The rest unknown.

*Hab.*—On wood, The Den, Mount Nelson, 1890, male plant, W.A.W., No. 506.

"A very distinct species; related to *St. chrysogaster* (C. Müll.), but easily distinguished by the form of the leaves."

28. *Fissidens sarcophyllus*, Burch. Broth., n. sp.

*Hab.*—On face of rock, on track below the Springs, Mt. Wellington, 1891, W.A.W., No. 772.

NEW VARIETIES.

1. *Orthotrichum lateciliatum*, Vent., var. *apiculatum*, Vent., n. var.

*Hab.*—On rock, Hobart Rivulet, 1892, W.A.W., No. 1548.

2. *Ulota lutea*, Mitt., var. *glaucescens*, Vent., n.v.

*Hab.*—On wood, McRobie's Gully, Hobart, 1892, W.A.W., No. 1532.

MOSSES NEW TO TASMANIA.\*

26. *Ditrichum flavipes*, C. Müll.

*Hab.*—On earth banks, Cradoc-road, Huon, and Forestier's Peninsula, 1889, W.A.W., Nos. 156, 162, 179, 258.

27. *Barbula rubella* (Hoffm.), Mitt.

Paroicous and synoicous; caespitose, deep green above, ferruginous red below, slender, branched. Leaves curled when dry, patent and recurved when moist, the lower lanceolate, upper suddenly larger, from an erect concave base, lineal-lanceolate, acuminate, carinate, minutely papillose on both sides, the margin recurved; nerve terete, vanishing below or in the apex; cells at base pellucid, rectangular, above small quadrate and chlorophyllose. Perichaetial bracts longly sheathing, thin. Capsule erect on a long reddish seta, cylindraceous, rarely oblong or oval, leptodermous, pale brownish-green, finally reddish; annulus of two rows of large cells, very fragile; lid conic, with a short straight or slightly oblique beak; peristome on a short basal membrane, pale red, soft, of 16 flat linear teeth, rarely cleft or perforated, the articulations nodose and papillose. Antheridia usually naked in the axils of the perichaetial bracts. *Barbula*

\* That is, not recorded in Fl. Tasm., in Mitten's list of 1859 (Jnl. Linn. Soc. iv.), in Mitten's Australian Catalogue 1882, or in Bastow's Tasmanian mosses 1886.



*rubella* varies considerably in size and density, but is very uniform in the fruit, and always more or less red in the lower leaves.—Braithwaite's *British Moss Flora*, Vol. 1, p. 260.

*Hab.*—On a dead log, Lauriston Gully, Kangaroo Point, 1891, and on rocks, Hobart Rivulet, 1892, and New Town Rivulet, 1893, W.A.W., Nos. 711, 1220, 1485.

A European moss, not before recorded for Australasia.

28. *Entosthodon cuspidatus* (H.f.W.).—Fl. N.Z. ii. 91, t. 86, f. 3.

Stems  $\frac{1}{8}$  in. high. Leaves spreading, nearly flat, ovate, acuminate, quite entire, nerve far excurrent. Seta pale, lin. long. Capsule erect, pyriform, small, quite symmetrical; annulus 0; inner peristome imperfect; operculum nearly flat.—Hook. *Handbook N. Z. Fl.*, p. 450 (Funaria).

*Hab.*—On the ground, Carlton, 1889, W.A.W., No. 428.

(Also New Zealand, Bay of Islands, J. D. Hooker.)

29. *Philonotis fertilis*, Mitten, Kew Journ. Bot. viii., p. 260.

*Hab.*—Ben Lomond, 1886, E. J. De Bomford. (Herbs. Bastow and Taylor; W.A.W., No. 1304.)

30. *Bartramia strictifolia*, Tayl.

Stems an inch high, laxly tufted, erect, subsimple, at the base clothed with a dark-brown down, in the middle reddish-brown, at the tops glaucescent-green. Leaves imbricate, strict, subulate-setaceous, subserrulate, margin reflexed, the lower appressed, straight, the upper recurved. Seta slender, flexuous, above an inch long. Capsule erect, from a narrow base subglobose, striate, when young turbinate, inclined to one side; operculum convex, obtusely mamillate; inner peristome much shorter than the outer.—*Lond. Journ. Bot.* 1846, p. 54.

*Hab.*—On the ground, Bay View Paddock, Bellerive, 1889, W.A.W., No. 967 (var. *minor*).

31. *Brachymenium preissianum*, Hampe, Icones, p. 25.

*Hab.*—On face of stone wall, Garden Crescent Reservoir, Hobart, 1890, W.A.W., No. 502.

(Also West Australia, Preiss, Drummond; and Victoria, F.V.M.)

32. *Bryum creberrimum*, Tayl. *Lond. Journ. Bot.* 1846, p. 54.—Fl. N. Z. ii. 84.—Hook. *Hand. N.Z. Fl.* p. 442.

Dioicous; stems aggregate, reddish, erect, with long shoots. Leaves olive-green, lax, suberect, when dry erect,



twisted and flexuous, lanceolate, acuminate, somewhat keeled, margin subrecurved, quite entire; nerve slender, excurrent as a very fine hair-point. Seta long, slender, flexuous; capsule nodding or pendulous, long, slender, cylindric, narrowed into the slender apophysis; operculum convex, mamillate.

"This differs," says Dr. Taylor, "from *Br. obconicum*, Br. Schimp., by the more elongated sterile shoots and their narrower leaves, and by the longer capsules, which are by no means obconical, but from a shrunken narrow apophysis are cylindrical."

*Hab.*—On the ground, near Richmond, 1888, and on wet bank, The Nut, Circular Head, 1892, W.A.W., Nos. 44 and 1068.

(Also West Australia and New Zealand.)

33. *Bryum erythrocarpoides*, Hampe and C. Müll., Linnæa 1853, p. 495.

*Hab.*—On wet earth bank, "Gentle Annie," Hobart Waterworks, 1892, W.A.W., No. 1216.

(Also Australia, F. v. M.)

34. *Bryum breviramulosum*, Hampe, Linnæa 1876, p. 311.

*Hab.*—On old log, Millhouse's Falls, Huon-road, 1893, W.A.W., No. 1467.

(Also Victoria, Sullivan.)

35. *Bryum pyrothecium*, Hampe and C. Müll., Linnæa 1855, p. 205.

*Hab.*—Bower Track, Mount Wellington, 1885, and Bay View Paddock, Bellerive, 1886, A. J. Taylor. On the ground, Fingal, and Guy Fawkes Rivulet, Hobart, 1888; on rocks near the Springs, Mount Wellington, 1890; and on the ground near Rocky Cape and at South-road Forest, Circular Head, 1892, W.A.W., Nos. 58, 94, 493, 541, 1063, 1076, 1078, and 1079.

(Also Australia.)

36. *Mniadelphus rotundifolius* (H.f.W.). Lond. Journ. Bot. 1844, p. 551.—Fl. N.Z. ii., p. 122, t. 93, f. 1.—Hook. Hand. N.Z. Fl., p. 493.—*Syn.*—*M. obliquo-mucronatus*, C. Müll. in litt.

Dioicous; small. Stem prostrate,  $\frac{1}{4}$ — $\frac{1}{2}$  in. long, sparingly branched; branches compressed, slender, reddish. Leaves dark green, lax, spreading, crisped when dry, orbicular-ovate, apiculate; margin thickened, toothed; nerve reaching half-way; cells large, lax, hexagonal. Perichaetial bracts margined,



toothed. Seta slender,  $\frac{1}{4}$  in. long, smooth. Capsule horizontal, narrow-oblong, pale; operculum with a slender straight beak, nearly as long as the capsule. Teeth of peristome yellow, with two rather distant subcylindrical dorsal ridges, forming the external lamina of the tooth; inner peristome without cilia; processes carinate, perforated. Calyptra fimbriate at the base, subpilose at apex.

"Closely allied to *M. dicksoni*, Hook., but differs in the smaller, roundish, denticulate leaves, more shortly apiculate. From *M. crispula*, H.f.W., which it also much resembles, it is distinguished by the rounder, much smaller, and denticulate leaves, with larger and more uniform areolæ."—Hooker.

*Hab.*—On logs, Sassafras Gully and Bower Creek, Mt. Wellington, 1888; and on wet wood and stones, Hobart Rivulet, 1893, W.A.W., Nos. 373, 376, 1585, 1586. On logs, Sophia Point and Gordon River, Macquarie Harbour, 1893, T. B. Moore, Nos. 27 and 53.

37. *Meteorium (Pilotrichella) billardieri*, Hampe, Linnæa, 1859-60, p. 637 (Neckera).

Stems turgid, elongate, pendulous, irregularly branched; branches short, about an inch, turgid, somewhat obtuse. Leaves turgidly imbricate, from a cordate base, cochleariform (inflexed at base and apex), quite entire; nerves two, short, distant. Perichaetial bracts few, lanceolate, involute. Seta short, thick. Capsule short, ovate; operculum conic, obtuse; teeth of peristome red. "Differs from *Neckera molle*," says Hampe, "in the more robust habit, the double-nerved leaves, and obtuse operculum."

Mr. T. W. Naylor Beckett, of Christchurch, says:—"The leaves are often nerveless, as in *Pilotrichella molle*, and I was unable to detect any nerve in the leaves of the specimen in Herb. Helms identified by Dr. Müller. The very robust habit, the turgid foliage, and the more obtuse and blunter ramuli form the most distinctive characters."—*Trans. N.Z. Inst.* 1893, p. 285.

*Hab.*—On trees, Macquarie Harbour, 1893, T. B. Moore, No. 9. Columba Falls, South George River, 1894, W.A.W., No. 1607.

(Also found in Victoria and New Zealand.)

38. *Hypnum (Rhynchostegium) convolutifolium*, Hampe, Linnæa 1859, p. 641.

*Syn.*—*Amblystegium convolutifolium* (Hampe), Mitt. Austral. mosses, p. 39. *Rhynchostegium strictiusculum*, Broth., in Bailey Cont. Queensland Fl. iv., p. 21 (name only).



*Hab.*—River Mersey, near Latrobe Waterworks, on trunk of tree, W.A.W., No. 1492.

(Also Victoria, F.v.M., and Queensland, F. M. Bailey.)

Mr. Brotherus says (New Sp. Austral. Mosses iii., p. 67) that having had an opportunity of examining original specimens of *H. convolutifolium*, Hampe, kept in Lindberg's herbarium, he finds it to be a genuine *Rhynchostegium*, and the Queensland moss, *H. strictiusculum*, Broth., to be perfectly identical with it.

39. *Polytrichum (Pogonatum) australasicum*, Hampe and C. Müll., Linnæa, 1853, p. 500.

Very like *P. tortile*, Swartz. Dioicous. Leaves from a subvaginant base short, pellucid, lanceolate, somewhat obtuse, somewhat plane, towards the apex spinulose-serrulate, spinulose at back, areolation sublux; the comal leaves as the others; all when dry intensely green; nerve wide, and covered with numerous lamellæ almost to the apex of leaf. Capsule cylindric-oblong, subcernuous, fuscous, everywhere smooth; operculum conic-apiculate, obtuse, short.

"The Australasian plant seems to be quite distinct from Swartz's *P. tortile* of the West Indies, being distinguished by its more obtuse leaves, its comal leaves being of the same form as the others, and particularly by its smooth cylindric capsule."—T. W. Naylor Beckett in *Trans. N.Z.*, 1893, p. 285.

*Hab.*—On shady earth banks, St. Crispin's Track, Mount Wellington, 1888, and Castra-road, Leven, 1892, W.A.W., Nos. 843 and 1057.

(Also found in Australia and New Zealand).

40. *Sphagnum antarcticum*, Mitt., Journ. Linn. Soc. IV. p. 100.

*Hab.*—On wet roadside bank, Longley, Huon-road, 1889 and 1892, and on Snake Plains, Mt. Wellington, 1894, W.A.W., Nos. 202, 1142, and 1617.—At Long Bay, Channel, 1890, A. J. Taylor (Herb. W.A.W., No. 1376).

MOSSES PREVIOUSLY RECORDED, BUT WANTING DESCRIPTION.

*Isopterygium acuminatum*, Bosw., Journal of Botany, April, 1892. (Proc. Roy. Soc. Tasm., 1893, p. 204, name only.)

In loose, low, soft tufts, bright green and lutescent-green. Leaves distichously compressed, shining, ovate-lanceolate, elongate, piliform, acuminate, truncate at base, margins quite entire; nerve very short, scarcely apparent; cells narrow elongate, the basal dilated, sub-quadrate, yellow. Capsule oblong, horizontally inclined.



"A rather larger plant," adds Mr. Boswell, "than *I. tenerum* (Hypnum), Swartz, from the West Indies, the leaves rather wider, long and slenderly acuminate. Colour bright glossy-green and straw-yellow. The opercula have vanished; the peristome seems normal."

*Sphagnum serrulatum*, Warnst. Hedwigia 1893 Tab. I. f. 1a—1g. (Proc. Roy. Soc. Tasm. 1893, p. 204, name only).

Plant robust, dark-green (always ?), floating in water, resembling a strong *Sph. cuspidatum*, Ehrh., especially the variety *plumosum*, Nees.

Stem leaves large, isosceles-triangular, 1.37—1.50 mm. long, and at the base averaging 1.14 mm. wide, with a narrow rounded or truncate, toothed apex; both kinds of cells in the middle and lower parts, the hyaline narrow and tube-shaped, without fibres or pores, the apical cells usually only chlorophyllose, the marginal gradually narrower, and forming an unmarked-off border of equal width.

Branches usually four in a fascicle, two long, strong, pointed, loosely leaved, and two somewhat weaker, rigid. Leaves of the former very large, long, narrow lanceolate, 5—5.14 mm. long, and at the base 1.14 mm. wide, running out to a narrow, truncate, coarsely-toothed apex, the margins from below the middle upwards, especially towards the apex, almost spinosely toothed, not rolled up when dry, undulate, somewhat shining; hyaline cells absent, only thin-walled trapezoid or nearly quadrate green cells, full of chlorophyll granules, gradually narrower towards the margin until they form an unmarked-off border, of course without fibres or pores.

*Hab.*—In ditch, Zeehan Railway, West Coast, 1891, W.A.W., No. 622.

"This," says Mr. Warnstorf, "is a remarkable species of the cuspidate group, and is distinguished from all others known to me by the presence in the branch leaves of none but chlorophyllose cells, all trace of fibres or pores therefore being absent. With forms of *Sph. cuspidatum* living in water exclusively it frequently happens that the hyaline cells recede in favour of the green cells, but that they should be wholly wanting is probably a new biological phenomenon with *Sphagna*. Another peculiarity is that the borders of both stem and branch leaves are not marked off from the other cell structure."

*Sphagnum pseudo-rufescens*, Warnst., Hedwigia 1893, Tab. II. f. 5a—5l. (Proc. Roy. Soc. Tasm., 1893, p. 204, name only.)

Plant scarcely distinguishable in habit from a densely branched *Sph. rufescens* with reddish-brown comæ.



Stem weak; cuticular cells in 1—2 layers, wide, nearly quadratic, with thin walls; woody tissue yellowish or reddish. Stem leaves very large, tongue-shaped, 2.20 mm. long, and at the base 1 mm. wide, apex rounded and denticulate, the upper margins more or less rolled up (often on one side only), narrow border of equal width all round; the inner hyaline cells almost poreless, the outer with numerous pores in rows at the commissures, very fibrous, the fibre structure mostly interrupted above the base, but resumed in the basal cells.

Branch fascicles densely crowded. Branches 4-5 in a fascicle, 2—3 stronger, divergent, the rest weaker, pendent. Leaves large, ovate or ovate-lanceolate, 1.83—3.14 mm. long, and at the base 1—1.32 mm. wide, the apex somewhat truncate and coarsely toothed, the margins bordered by 3—4 layers of narrow cells and curled far downwards, when dry closely imbricate, rarely placed slightly towards one side, not shining. Hyaline cells, narrow, long, very fibrous, nearly poreless on the inner leaf surface, but with numerous small pores at the commissures on the outer surface, the pores being much larger towards the base. Chlorophyllose cells in transverse section barrel-shaped, thick walled, central, free.

*Hab.*—In bog, top Mount Wellington, 1888, W.A.W., Nos. 972-7.

“By the pore structure in the branch leaves,” says Mr. Warnstorf, “this species is very close to *Sph. subsecundum*, Nees; whilst the large stem leaves, fibrous to the base and bordered narrowly all round, reminds one of *Sph. rufescens* and *Sph. obesum*, Wils.”

*Sphagnum macrocephalum*, Warnst., Hedwigia 1893, Tab. II. f. 6a—6g. (Proc. Roy. Soc. Tasm. 1893, p. 204, name only.)

Plant very robust, bluish-green or tinged with brown; the short upper branches uniting in a thick globular coma; in habit resembling a strong *Sph. cymbifolium*, especially the var. *glaucescens*.

Cuticle of the thick stem in 3—4 layers of wide cells without fibres, but those of the external layers with a large opening on the topside; the woody tissue dark red, with narrow thick-walled cells.

Stem leaves large, 1.28 mm. long and at the base 1.14 mm. wide, tongue-shaped. Hyaline cells towards the margins and the apex divided by obliquely-running walls, and terminating (especially at the apex) in a wide hyaline border, in which, however, the walls appear to be absent; quite without fibres, but with large round pores in nearly all the cell-angles.

Branches usually five in a fascicle, two strong, divergent, the rest much weaker, softer, and shorter, and appressed to



stem. Cuticular cells of both in one layer, only here and there a cell is divided lengthways. Leaves of divergent branches large, up to 2.14 mm. long, and below the middle about 1 mm. wide, from a narrow base widening to the middle, then gradually narrowing to a wide, truncate, toothed, cap-shaped apex, closely imbricate or squarrose, when dry faintly shining; margins denticulate and bordered by 3—4 layers of narrow cells. Hyaline cells very fibrose, those on the upper half of the inner surface of leaf having medium-sized pores, especially where several cell angles meet; nearer the margins the pores are solitary and small, whilst the base is poreless; on the apical half of the outer surface pores very numerous in rows at the commissures, slightly ringed, round to half-round, medium to small, in the basal part only small angle pores. Chlorophyllose cells in section elliptic, central, enclosed by the hyaline cells on the inner surface, but free on the outer, where the walls are mostly smaller, strong, and thickened. Leaves of the pendent branches appressed, lanceolate, with hyaline border towards apex; areolation much laxer; on both surfaces the hyaline cells have numerous much larger, delicately ringed, pores. Chlorophyllose cells trigonous-oval, nearer the outer surface, and here free, but enclosed at the inner surface by the hyaline cells.

*Hab.*—On the ground, Lake Bellinger Track, Zeehan Railway, West Coast, 1891, W.A.W., Nos. 623-4.

*Bryum (Eubryum) sullivanii*, C Müll. Brotherus's Australian Mosses, ii., p. 37. (Proc. Roy. Soc. Tasm., 1893, p. 208, name only.)

Dioicous; in dense, soft, turgescient tufts, sordid green, scarcely shining. Stem to 2 cm. high, erect, densely leaved, sparingly radiculose at base; innovations few, erect, strict, to 8 mm. high, densely leaved, rather acute. Leaves all nearly equal, when dry imbricate, when wet patent, soft, very concave, not decurrent, oblong, somewhat obtuse, 1.5—1.7 mm. long and 0.5—0.6 mm. wide, not quite entire, not limbate, margins erect, revolute at base on one side only; nerve stout, 0.06 wide near the base, lutescent, red at base, vanishing below the apex; cells in the middle of the leaf rhomboid-hexagonal, 0.050—0.060 mm. long and 0.010—0.015 mm. wide, the basal rectangular, the lowest inflated, purple. Perichaetial bracts ovate, acuminate, the innermost smaller, from a dilated base gradually acuminate. Seta to 13 mm. high, geniculate-ascending at base, cygneous at apex, thin, purple, not shining, not twisted when dry. Capsule pendulous, oblong, with short thick neck, when dry rugose, 2.25 mm. long and 1 mm. thick, symmetrical, not constricted below the mouth, purple, not shining; annulus broad, revolute; peristome as in *Br. alpinum*,



spores 0.012—0.015 mm., ochraceous, quite smooth; operculum convex-conic, acutely apiculate, pallid. Male plant unknown.

“Related,” says Mr. Brotherus, “to *Br. alpinum* and *Br. muchlenbeckii*. It recedes from the former in the much laxer areolation of the leaves and the vanishing nerve; and is distinguished from the latter by the purple capsule with thick neck.”

#### ABBREVIATIONS.

*Broth.*—Professor V. F. Brotherus, of Helsingfors, Finland.

*Burch.*—Dr. O. Burchard, of Hamburg.

*Geh.*—Mr. A. Geheeb, who is working with Professor Brotherus on Baron Sir F. von Mueller’s mosses.

*Mitt.*—Mr. W. Mitten, of Hurstpierpoint, Sussex, England.

*Vent.*—Dr. G. Venturi, of Trento.

*Warnst.*—Mr. C. Warnstorf, of Neuruppin, Prussia.